

ANNUAL
HEALTH REPORT

OF THE

Hebburn Urban Sanitary District,

For the Year 1893.

BY

ROBERT MITCHELL, M.A., M.B., C.M.,

Medical Officer of Health.

Hebburn:

Printed by T. Robinson & Co., "Express" Office, Carr Street.

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The Hebburn Local Board.

Mr. Chairman and Gentlemen,

I beg to present to you my Annual Report of the

Health of the Hebburn Urban Sanitary District for 1893.

I am, Gentlemen,

Your Obedient Servant,

ROBERT MITCHELL.

Hebburn, February 6th, 1894.

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| | | | | | | | |
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Health Report, 1893.



1.--Vital Statistics.

During the year 1893, 682 Births and 314 Deaths were registered. This is a decrease of 8 Births and a decrease of 54 Deaths from the numbers for 1892. Of the Deaths, 20 were the subjects of Coroner's Inquiries, being the same number as in 1892. The excess of Births over Deaths was 368. In 1892, the excess was 322. In 1891, the excess was 418. Of the Deaths, 153 were males and 161 were females. This is an excess of 8 in the mortality of females over that of males. In 1892, there were 28 more Deaths of males than of females. In 1891, 25 more Deaths of males than of females.

Population.—Estimated at 18,000.

Birth-Rate.—37·8. Rate for England, 30·8,

Death-Rate.—17·4. Rate for England. 19·2

QUARTERLY MORTALITY.

| | 1st Quarter. | 2nd Quarter. | 3rd Quarter. | 4th Quarter. |
|--------------------|--------------|--------------|--------------|--------------|
| Hebburn ... | 15.1 | 15.5 | 19 | 20 |
| United Kingdom ... | 19.9 | 18 | 18.6 | 19.8 |

MORTALITY IN RELATION TO AGE AND LOCALITY.

In the following table is shown the number of Deaths that have occurred in each of the three sub-divisions of the district.

| Year. | Under 1 year | 1 and under 5. | 5 and under 15. | 15 and under 25. | 25 and under 65. | 65 and upwards. | Total. | |
|------------|-----------------|----------------------|-----------------------|------------------------|-------------------------|-------------------------|-----------------------|-----|
| Quay | 1891 | 50 | 28 | 10 | 6 | 25 and under 60 } 37 | 60 and upw'ds } 19 | 150 |
| | 1892 | 53 | 46 | 20 | 12 | 30 | 14 | 175 |
| | 1893 | 47 | 22 | 8 | 6 | 47 | 8 | 138 |
| New Town | 1891 | 37 | 14 | 3 | 9 | 25 and under 60 } 18 | 60 and upw'ds } 15 | 96 |
| | 1892 | 37 | 32 | 3 | 5 | 10 | 4 | 91 |
| | 1893 | 28 | 18 | 1 | 5 | 31 | 11 | 94 |
| Colliery | 1891 | 32 | 11 | 2 | 5 | 25 and under 60 } 11 | 60 and upw'ds } 6 | 67 |
| | 1892 | 35 | 25 | 13 | 2 | 18 | 9 | 102 |
| | 1893 | 33 | 22 | 3 | 8 | 12 | 4 | 82 |
| Total 1891 | 119 | 53 | 15 | 20 | 25 and under 60 } 66 | 60 and upw'ds } 40 | 313 | |
| Total 1892 | 125 | 103 | 36 | 19 | 58 | 27 | 368 | |
| Total 1893 | 108 | 62 | 12 | 19 | 90 | 23 | 314 | |

The most noticeable feature of this table is that there is a considerable diminution in all the columns from the figures of last year, except in that representing the Adult Mortality, 25 and under 65 years of age, in which there is an increase of 32. This increase is altogether in the Quay and New Town. In the Quay, this increase occurred in the months of March, April, and May, and in September, October, and November. In the New Town, it was chiefly in October and November. The commoner causes of Deaths registered of those above 25 years, include Phthisis, Heart Disease, Bronchitis, Heart Failure, and one in April from Influenza. The sharp rise in the Mortality at these times points to there having been some unhealthy circumscribed conditions present, acting injuriously on those already suffering from other serious disease, and hastening a fatal termination. This influence may have been, to some extent, Influenza, which prevailed considerably in the Autumn months, and which is registered as the cause of one death in April. It is possible also that in some cases there may have been an element of Typhoid, which, in the less typical and severe forms, in those already suffering from severe disease, might have been obscured and unsuspected, but yet sufficient to turn the scale and hasten

a fatal termination. The wave of increased mortality in the ages 25 and under 65 in the Autumn months, corresponded in time with the occurrence of most of the cases of Typhoid Fever. It may also have been connected with some local defects in the water supply, though of this I have no proof, nor have I got, with two exceptions—in one of which the burst pipe was promptly remedied, and in the other the water was found to correspond on chemical analysis with the normal good supply—any complaint of any deviation from the apparent purity of the water supply to any house in the district. At the same time, although contamination of drinking water is generally attended with a perceptible alteration of its clearness and other physical characters, there may, in some cases, be injurious contamination without such alteration.

RATE OF INFANT MORTALITY,

measured by the number of infant deaths per 1,000 born, was 158. Rate for 1892 was 181. Rate for England was 151. This is a very distinct diminution on the rate for the previous year.

In the two columns (one and under five, and five and under 15) which include children of school age, there is a marked diminution from the figures of last year.

The sum of these two for 1893 is 74, and for 1892 was 139. This is a decrease of 65 deaths. This decrease was chiefly caused by the high mortality from Measles and Whooping Cough in 1892, and the fact that a good many of the weaker children were cut off by these diseases during that year. During 1893, there have been only four deaths from Measles and 11 from Whooping Cough. In regard to deaths under 15 years, there is a decrease of 82, and in regard to deaths at 25 and upwards, there is an increase of 28, in comparison with the figures for 1892.

MORTALITY DUE TO ZYMOTIC DISEASES.

Total number of deaths, 69. In 1892 it was 85; in 1891 it was 41. Rate for 1893, 3·83; in 1892 it was five. Of the 69 deaths, Diarrhœa was registered as the primary cause of 34, or 49·2 per cent. In addition to these, it was also registered as a secondary or contributing cause of death in 12, making a total of 46 in which Diarrhœa is registered as a

cause of death. As in table A, these 12 are entered in the column representing the primary causes of death; they do not appear there among the deaths registered as due to Diarrhœa. In the following table will be seen the deaths due to each of the principal Zymotic Diseases, and the rate of mortality from each.

| Zymotic Diseases. | Total Deaths during | | | Annual Rate, 1893. | |
|-------------------------------|---------------------|-------|-------|--------------------|----------|
| | 1891. | 1892. | 1893. | HEBBURN. | ENGLAND. |
| Small Pox ... | ... | ... | ... | .. | .04 |
| Scarlatina ... | 1 | 7 | ... | ... | .17 |
| Diphtheria .. | 2 | 1 | 3 | .16 | .22 |
| Membranous Croup | ... | ... | 1 | .05 | ... |
| Typhus ... | .. | ... | ... | .. | ... |
| Enteric ... | 1 | ... | 9 | .50 | ... |
| Continued ... | ... | ... | ... | ... | .18 |
| Relapsing ... | ... | ... | ... | .. | ... |
| Puerperal . | 2 | 2 | 2 | .11 | ... |
| Cholera ... | ... | ... | 1 | .05 | ... |
| Erysipelas ... | 2 | ... | 4 | .22 | ... |
| Measles ... | ... | 44 | 4 | .22 | ... |
| Whooping Cough | 14 | 19 | 11 | .61 | .25 |
| Diarrhœa and Dysentery ... | 19 | 12 | 34 | 1.80 | .79 |
| Total ... | 41 | 85 | 69 | 3.83 | |

The special features in this table are the increase of deaths from Enteric Fever from none in 1892 to nine in 1893, the increase from Diarrhœa from 12 to 34, the decrease from Measles from 44 to four, the decrease from Whooping Cough from 19 to 11, and the decrease from Scarlatina from seven to none.

Enteric Fever. — Nine (four in the Quay, three in the New Town, and two in the Colliery). Three occurred in September, three in October, one in November, and two in December.

Diarrhœa. — 34. This is an increase of 22.

Whooping Cough. — Eleven deaths, in 1892 19, decrease eight.

Measles. — Four deaths, in 1892 44, decrease 40.

It is a relief to have been comparatively free both from the prevalence and mortality of measles during the past year.

Erysipelas. — Four deaths.

Puerperal Fever.—Two deaths.

Scarlet Fever.—None.

Membranous Croup.—One death.

Diphtheria.—Three deaths.

Cholera.—One death occurred on board a ship at Pelaw. It is very satisfactory that there was no spread of the disease.

Mortality from Tuberculosis.—Twenty-nine deaths; in 1892, 36; in 1891, 28.

Mortality from Bronchitis, Pneumonia, and Pleurisy.—Fifty-three deaths; in 1892, 73; and in 1891, 73, so that during the past year there has been a very considerable diminution, probably referable to the climatic conditions being more favourable in regard to these diseases. In other 14 they were registered as a secondary cause of death.

Heart Disease.—Eighteen deaths, and other six in which it is registered as a secondary cause of death. In 1892 it was registered as the primary cause of 17 deaths.

Injuries.—Four; in 1892, 10.

All other Diseases.—One hundred and thirty-seven; in 1892, 146.

II.—Prevalence of Infectious Diseases and Measures taken for Arresting their Spread.

In table B there is a list of Infectious cases notified, and of the cases removed to the Hospital. In the following table is the Quarterly return of the cases notified

| | | Small Pox. | Scarlatina. | Diphtheria. | Mem. Group | Typhus. | Enteric. | Continued. | Relapsing. | Puerperal. | Cholera. | Erysipelas. | Total. |
|-----------------------|----------|------------|-------------|-------------|------------|---------|----------|------------|------------|------------|----------|-------------|--------|
| 1st Quarter | Quay | ... | 10 | 1 | ... | ... | ... | ... | ... | 1 | ... | 7 | 19 |
| | New Town | ... | 6 | 3 | ... | ... | ... | ... | ... | 0 | ... | 1 | 10 |
| | Colliery | ... | 4 | 4 | ... | ... | 4 | ... | ... | 1 | ... | 1 | 14 |
| 2nd Quarter | Quay | ... | 20 | 2 | ... | ... | 2 | ... | ... | ... | ... | 7 | 31 |
| | New Town | ... | 11 | 0 | ... | ... | 0 | ... | ... | ... | ... | 2 | 13 |
| | Colliery | ... | 1 | 0 | ... | ... | 1 | ... | ... | ... | ... | 3 | 5 |
| 3rd Quarter | Quay | ... | 1 | 0 | ... | ... | 17 | ... | ... | ... | ... | 0 | 18 |
| | New Town | ... | 2 | 2 | ... | ... | 7 | ... | ... | ... | ... | 2 | 13 |
| | Colliery | ... | 0 | 1 | ... | ... | 1 | ... | ... | ... | ... | 0 | 2 |
| 4th Quarter | Quay | ... | 9 | 0 | ... | ... | 13 | ... | ... | ... | ... | 5 | 27 |
| | New Town | ... | 0 | 2 | ... | ... | 7 | ... | ... | ... | ... | 6 | 15 |
| | Colliery | ... | 14 | 9 | 1 | ... | 3 | 4 | ... | ... | ... | 2 | 33 |
| TOTAL | Quay | ... | 40 | 3 | ... | ... | 32 | ... | ... | 1 | ... | 19 | 95 |
| | New Town | ... | 19 | 7 | ... | ... | 14 | ... | ... | ... | ... | 11 | 51 |
| | Colliery | ... | 19 | 14 | 1 | ... | 9 | 4 | ... | 1 | ... | 6 | 54 |
| TOTAL, whole district | | ... | 78 | 24 | 1 | ... | 55 | 4 | ... | 2 | ... | 36 | 200 |

1st. **Smallpox.**—No case notified.

2nd. **Scarlatina.**—Seventy-eight cases notified.

In 1892 there were 219. Of the 78 cases notified in 1893, 20 occurred in the first quarter, 32 in the second quarter, three in the third quarter, and 23 in the fourth quarter. The district has been seldom free from this disease, but it is satisfactory to note the great diminution from the large number of cases notified in 1892, and that during 1893 there have been no deaths registered as due to it.

3rd. **Diphtheria.**—Number notified 24. Eight in the first quarter, two in second quarter, three in third quarter, and eleven in the fourth quarter. All of these, with the exception of a group of cases

occurring in the fourth quarter at the Colliery, and two cases occurring in one house at the New Town in the fourth quarter, were single cases occurring at comparatively large intervals both of place and time. Most of them were slight cases. At the Colliery, nine cases occurred in the fourth quarter. At the same time at the Colliery, there were a considerable number of cases of Measles and Scarlet Fever. The cause of their propagation seems to have been infection from school attendance and communication with one another at or about their homes. There were no special features pointing to their propagation by milk or other supplies.

Membranous Croup.—Only one case notified at the Colliery in the fourth quarter.

Typhus.—None.

Enteric or Typhoid Fever.—Fifty-five cases notified; four in the first quarter, three in the second quarter, 25 in the third quarter, and 23 in the fourth quarter. This is a large increase on the numbers in previous years. In 1892 there were only nine cases notified. In 1891 six cases, and in 1890 15 cases. The past year, 1893, has been one remarkable for its meteorological conditions, characterised by extreme dryness, in which the total rainfall was 21 inches; and by exceptional heat, especially in the month of August. These are two important conditions in considering the etiology, or causation, of Typhoid Fever, inasmuch as the dryness of the season is apt to affect, in many communities, the purity of the water supply, although this is hardly relevant in the case of the source of supply for the Hebburn district, which is derived from artesian wells in which the water has been almost freed from organic constituents by natural filtration. The dryness has in this district a very directly injurious effect on the condition of the gullies and sewers, on account of the want of the usual frequent flushing and cleansing of them by storm water, although the sewers in the district were periodically flushed during the dry season, to my satisfaction. The intense heat of the season, and especially of the month of August, is also a very important factor, inasmuch as it promoted intense and rapid organic decomposition in the privies, ashpits, saturated subsoil, lanes, gullies and sewers, all of which, though they do not

directly, without infection of the Bacillus of Typhoid, cause an onset of Typhoid Fever, on account of the numerous facilities they afford for the lodging, propagation, and dissemination of the Typhoid Bacilli, at least, very greatly increase the danger of it, and of its spread when once infection has occurred. As in the case of Diarrhœa the intense heat had probably some influence in predisposing to the disease by inhibiting and disturbing the functions of the organs of digestion. Subjoined are the Meteorological returns for the second half of the year :—

METREOLOGICAL RETURNS, 1893.

| | | Temperature. | | Chief Prevailing Winds. | Rainfall. |
|-------|----------------|--------------|------|-------------------------|-----------|
| | | MAX. | MIN. | | |
| July | 24—31 ... | 68 | 55 | W, N, W | .65 |
| Aug. | 1—7 ... | 64 | 59 | W, N, W, S, SSE | 1.18 |
| | 8—14 .. | 74 | 63 | SE, W and SW | .45 |
| | 15—21 ... | 80 | 66 | S, SE | .64 |
| | 22—28 ... | 67 | 58 | SE, WSW | .17 |
| | 29—Sept. 4 ... | 67 | 55 | W, SW | .1 |
| Sept. | 5—11 ... | 77 | 43 | W, SW, NW, | .43 |
| | 12—18 ... | 67 | 43 | W, SW | .06 |
| | 19—25 .. | 62 | 40 | WSW, W | .34 |
| | 25—Oct. 2 ... | 66 | 46 | N, E, SSE | .42 |
| Oct. | 3—9 ... | 67 | 40 | S, W | .06 |
| | 10—16 ... | 58 | 42 | S, W, W | .32 |
| | 17—23 ... | 63 | 46 | W, S, W | ... |
| | 24—30 ... | 60 | 41 | S, W | .15 |
| | 31—Nov. 5 ... | 54 | 32 | W, S, W | .13 |
| Nov. | 6—12 ... | 49 | 31 | N, W, NNE | 1.22 |
| | 13—19 ... | 55 | 41 | NNE | .04 |
| | 20—26 ... | 63 | 30 | NE, W | .67 |
| | 26—Dec. 2 ... | 59 | 27 | SW | ... |
| Dec. | 3—9 ... | 55 | 29 | W, SSW | ... |
| | 11—17 ... | 52 | 29 | SE, W | .97 |
| | 18—24 ... | 60 | 37 | SE, SW | ... |
| | 24—30 ... | 59 | 39 | S, SW | .. |

The total rainfall for the year was 21 inches.

These Meteorological conditions, however, along with the source of water supply, are general conditions affecting equally all parts of the district, so that if their influence was the only one in producing the incidence of Typhoid Fever which prevailed during the past year, it

might have been expected that their effect in the production of cases of Typhoid Fever would have been fairly evenly distributed over the district, and over the different houses and classes of houses in the district. But this was not the case. It was found, for instance, especially in the earlier months of its prevalence, that relatively a much larger proportion of the cases of Typhoid Fever occurred in houses supplied with ashpits than in the houses supplied with dry closets, with facilities for frequent and complete emptying. In the statistics which I gave to you in my monthly report in the beginning of October, it was shewn that up to that time there had been relatively a much greater incidence of the disease in houses supplied with ashpits, than in those with dry closets. Up to that time, of a total of 41 cases notified of Typhoid Fever, 25 occurred in houses with ashpits, three in houses supplied themselves with closets, but surrounded with ashpits, and 13 in houses supplied with closets and with no ashpits near. Of these 13, three were imported, leaving 10 occurring in houses with closets. The total number of closets in the district is 1,252 for about 10,000 inhabitants. The total number of ashpits is 993 for about 8,000 inhabitants. If the same incidence of the disease had prevailed in the two classes of houses, there should not have been more than eight or nine cases of Typhoid Fever occurring in the total number of houses supplied with ashpits. But instead of eight or nine, we have occurring in these 25 cases, and if we add the three occurring in houses with ashpits in the immediate vicinity, we have 28. In the one class of house, the incidence of Typhoid Fever was approximately one per 1,000 inhabitants; in the other class, it was more than three per 1,000 inhabitants, so that proportionally up to that time, three times more cases of Typhoid Fever occurred in the one class, those supplied with ashpits than in the other class, those supplied with dry closets. Since that time, however, this variation in the incidence of the disease has been much reduced by the occurrence of a considerable number of cases in houses supplied with ash-closets, so that the relative figures for the whole year do not show the same marked disproportion in regard to the respective numbers in the two classes of houses, as prevailed in regard to the cases which occurred up to the time I reported to you in October. At the same time, the probable explanation of this is,

that the disease was disseminated later in the year, in various ways, from the more intense centres or foci to other parts of the district, and I still think that the ashpits had a very important influence in the occurrence of the considerable number of cases of Typhoid Fever during the past year, on account of the facilities provided by ashpits when they have become infected for the propagation and conveyance of the infective germs of Typhoid Fever, in the ashpit itself, probably also on the walls of the ashpit, in the atmosphere, in the saturated subsoil of the lanes and yards, in the local water supply if any defects are in the pipes which pass through the contaminated subsoil, and on account of the great danger of these infective germs being carried by flies and insects on to the food supplies in the houses, and from the saturated subsoil with the air, by the strong suction force of the house fires, through the foundations and into the interiors of the houses. The general milk supplies do not seem to have had any appreciable relation to the occurrence of the disease. The 55 cases were distributed over eight different milk supplies as follows :—

Milk supply A, $12\frac{1}{2}$ out of about 700 families supplied.

„ B, $7\frac{1}{2}$

„ C, $2\frac{1}{2}$

„ D, 6

„ E, 1

„ F, 3

„ G, $\frac{1}{2}$

„ H, 2

17 used only condensed milk.

The distribution of the disease also pointed rather to local transference of it than to a general carriage of it by milk supply.

VII. Continued Fever.—Four cases at the Colliery in last quarter.

VIII. Relapsing Fever.—None.

IX. Puerperal Fever.—Two cases notified (one at Quay, one at Colliery) in first quarter.

X. Cholera.—In September I received information of the occurrence of a fatal case of Cholera on a ship at Pelaw. I immediately visited the ship, along with the Sanitary Inspector, but found that the Tyne Port Sanitary Authority had made arrangements for the burial of the body, and for the other sanitary precautions. It is very satisfactory that the year has passed without the disease obtaining any hold in the district. The usual printed directions for the diligent maintenance of good domestic sanitation by the inhabitants were posted freely over the district early in the year.

XI. Erysipelas.—Thirty-six cases notified, nine in the first quarter, 12 in second, two in third, and 13 in fourth.

XII. Measles.—The district was almost free from this disease up to nearly the end of the year, when a considerable number of cases occurred at the Colliery, and a few at the Quay and at the New Town. In the beginning of December about twenty cases of Measles occurred among children attending the schools at the Colliery, and two deaths occurred among these, but there was no extensive spread of the disease and before the close of the year the outbreak seemed to be nearly abated.

XIII. Whooping Cough.—A few cases occurred throughout the year, and there were several cases at the Colliery in conjunction with the Measles.

XIV. Diarrhœa.—In addition to the other ordinary causes of Diarrhœa, such as errors of dieting and clothing and management of infants, the intense heat probably predisposed considerably to the occurrence of Diarrhœa during the past year by promoting organic decomposition in the food supplies in the house, as well as organic decomposition in the surroundings, and also by impairing and inhibiting the functions of digestion, and thereby promoting intestinal decomposition.

XV. Influenza.—Some cases occurred in the Spring, and a very considerable number in the Autumn, and seemed to lead to increased mortality at both times, though only two deaths were registered as directly due to it.

Disinfection and Isolation were maintained as described in previous report. Total cost of disinfectants, £71 18s 5d; goods

destroyed for purpose of disinfection, £1 13s 11d. There is still a want of an efficient steam disinfecter.

HOSPITAL FOR INFECTIOUS DISEASES.

Thirty-six cases were isolated at the Hospital during the year. Of these twenty were Scarlet Fever, one Diphtheria, fourteen Typhoid, and one Measles. Three deaths occurred from Typhoid Fever.

The following is a statement of the Hospital expenditure for the year :—

HOSPITAL EXPENDITURE

For the year ending December 31st, 1893.

| | | | | | £ | s. | d. |
|---------------------------|-----|-----|-----|-----|-------|----|----|
| Wages (Nurse, &c.) | .. | ... | ... | ... | 69 | 3 | 0 |
| Repairs and Renewals | ... | ... | ... | ... | 25 | 16 | 8 |
| Fuel and Light | .. | ... | ... | ... | 26 | 5 | 9 |
| Drugs and Disinfectants | ... | ... | ... | ... | 11 | 1 | 7 |
| Food | ... | ... | ... | ... | 92 | 13 | 9 |
| Ground Rent and Insurance | | ... | .. | ... | 11 | 5 | 0 |
| Funeral Expenses | ... | ... | ... | ... | 2 | 0 | 0 |
| Furnishings (New)... | .. | ... | ... | .. | 12 | 1 | 8 |
| Laying out Grounds | ... | . | ... | ... | 22 | 15 | 6 |
| | | | | | <hr/> | | |
| | | | | | £273 | 2 | 11 |

In the last quarter of the year the Hospital was extended and improved by the addition of two rooms for nurses, the provision in each ward of hot and cold water, and of a fumigating disinfecting chamber. During the Summer the Hospital drains, on account of an obstruction and leakage having taken place, were laid open. The pipes were lifted, re-laid, securely socketed, and jointed with cement, and at the same time provided with ventilators, carried up above the roof of the Hospital, and with flushing shafts, so that the Hospital has now a very secure and reliable drainage. You have also decided to provide a larger and more efficient water supply to the Hospital by laying a two-inch water pipe instead of the half-inch one that has hitherto been the means of supply, and at the same time providing hose and nozzle for dealing promptly with fire in the event of its occurrence. The Hospital will then be in an excellent condition.

III.—General Sanitation.

Storage and Removal of Excremental and other Refuse.

—These have been carried out on similar principles to those which prevailed in previous years, and which have been described in my previous Annual Reports to you. With the exception of a small quantity which was put on the land for manurial purposes and ploughed in, all the refuse was carried to sea.

In regard to the Storage of the refuse at the houses during the year, the dry closets have increased by one hundred and thirty-eight, and the ash-pits have decreased by thirty-one. From numbers supplied to me by the Sanitary Inspector, there are now in the

| | | | | | |
|----------|-----|-------|--------------|-----|----------|
| Quay | ... | 922 | Dry Closets, | 185 | Ash-pits |
| New Town | ... | 328 | „ | 232 | „ |
| Colliery | ... | 2 | „ | 576 | „ |
| <hr/> | | | | | |
| Total | ... | 1,252 | „ | 993 | „ |

A very great Sanitary improvement has been effected in the Quay district, where the large covered privy ash-pits are now being satisfactorily removed and good ash-closets substituted, one for each family. From what I have already stated, I think there can be no question that the ash-pit system of storage of refuse is injurious to health and the cause of much unnecessary sickness and mortality. I do not think their injurious effects can be adequately obviated, though they may be so far diminished by increased frequency of emptying because on account of the want of facilities for frequent and complete emptying, the surrounding atmosphere, the subsoil of the back lanes on which the semi-liquid contents are thrown when they are emptied, and the lane gullies and sewers are more or less polluted on each occasion. Emanations from the polluted subsoil and clay-jointed sewers are, in many cases, I believe, being constantly drawn into the interiors of the houses by the strong suction force of the house fires. Fluctuations in the level of the ground water, forcing from time to time the contaminated air upwards, and variations in the atmospheric pressure tending, when it is low, to draw these emanations upwards, and the action of house flies and insects in inoculating food supplies from the abundantly

present decomposing organic matters, have all been, probably, important factors in connection with the imperfect ash-pit system of storage of refuse, in the aggravation of sickness and mortality during the Summer and Autumn months. In an Urban District such as this, where the houses are closely aggregated together in streets, the system is essentially unsatisfactory and insanitary, and is one worthy of a special effort for its removal. Its abolition may also be urged on the ground of economy, because on account of the want of facilities for emptying and cleansing, the contents of the ash-pits have to be twice lifted before they reach the carts, as the contents are first thrown on to the lanes, and then from the lanes into the carts, whereas the contents of the dry closets are directly and expeditiously put into the carts as they pass by them, and it is found that, as a rule, each cart removes the same number of loads to the hopper per night, whether it is leading from the ash-pits or from the dry closets. The cost of wages for the extra men required for the removal of the refuse from the ash-pits over what would be required if they were substituted by dry closets may, I think, be fairly calculated at £150 a year.

General House Accommodation and Condition of the Houses in the District.—One-hundred-and-two New Houses have been built during the year. Of these, fifty-three are self-contained, and include two six-roomed, 20 five-roomed, 24 four-roomed, seven three-roomed. 49 are tenemented houses of four rooms and three rooms. These new houses have all been certified by the Surveyor as having been built in accordance with the Bye-Laws. During the year, a large number of the old houses at the Colliery, situated at the Square and adjoining rows, were found to be in a damp and insanitary condition on account of the want of spouting and other defects. These have been satisfactorily remedied. As stated in the Sanitary Inspector's Report, 190 notices have been served for the removal of nuisances in connection with houses. The condition of the large tenemented houses, of which there are only a few in the district, was regularly attended to, and facilities given for the white-washing of common passages, stairs, and out-houses.

Common Lodging Houses.—None.

Unsound Food.—During the year the condition of the food supplies have been regularly watched by the Sanitary Inspector. Legal proceedings were taken in one case for the sale of putrid herring, and a fine was inflicted by the Magistrates. A quantity of diseased meat was also seized and destroyed by Magistrates' order.

Food and Drugs' Act.—As will be seen in the Sanitary Inspector's report, nineteen samples were sent to the Analyst during the year under the Food and Drugs' Act, and all, with the exception of three, were returned as genuine. One of whisky, one of rum, and one of vinegar were reported adulterated. Proceedings were taken in each of the three, and a conviction was made by the Magistrates in the case of one.

Dairies, Cowsheds, Milkshops, &c.—These have been frequently inspected during the year by the Sanitary Inspector, and always found to be in a very satisfactory condition.

Water Supply.—During the year I made several chemical analyses of the water from different parts of the district, and on each occasion found it to be chemically of its usual good and wholesome character. One leak in a pipe was found adjoining a house in which there was Typhoid Fever. This was promptly remedied by the Water Company. The Wallsend and Hebburn Coal Company have agreed to provide increased facilities for water supply to the houses in High Lane Row and Cleminson's Row. In future I hope to have facilities for making a bacteriological, as well as a chemical, examination of the water supplies from time to time.

Summary of Advice tendered to the Sanitary Authority.—

That the Hospital be extended, and increased facilities for bathing the patients be provided by the supply of hot and cold water to each ward.

Result.—Recommended by a Special Committee and carried out by the Board.

That the refuse from the Colliery be not put on the land in the Autumn during the considerable prevalence of Infectious disease.

Result.—Approved by the Board.

Indications of Causes of Disease.—In accordance with your directions, I reported to you on the effect which the steam and other matters discharged from the Colliery Shaft by the Fan Blast in front of Lyon Street had on the health of the neighbourhood. I examined these effects in regard to three chief aspects.

1st. Their effect on the atmosphere in the vicinity of the houses most affected.

2nd. The effect, if any, they have had on the relative number of deaths in the houses most affected.

3rd. The effects, if any, on the relative prevalence of Sickness in the houses most affected.

1st. With regard to the effect on the atmosphere, I find that in clear, dry weather, when the wind is in the north, and is driving the vapour on to the front of Lyon Street, there is no perceptible increase to the amount of Carbonic Acid in the atmosphere of the part of Lyon Street affected. In duller, thicker conditions of the atmosphere there is then a slight perceptible increase in the amount of Carbonic Acid in the atmosphere of the part affected, but that that increase is within the limits of health. There is, however, a very perceptible increase of vapour in the atmosphere of the parts affected according to the direction of the wind. The effect of this is to produce for the inhabitants of the houses affected, a set of conditions similar to what would prevail normally if they were living in other parts of the country, where the number of rainy days in the year is considerably greater than the number in this exceptionally dry north-eastern district. As a general rule, it may be taken that a dry climate is healthier than a damp one under otherwise, similar conditions, and therefore it may be said that theoretically the occasional presence in the atmosphere of the houses affected, of the vapour issuing from the Pit Shaft is to that extent injurious to health. I do not discuss the question of it being a nuisance simply. That is perceptible by the senses. The other gases that may be thrown out from the shaft, such as Marsh gas, may be disregarded on account of their lightness and rapid diffusibility.

2nd. In order to ascertain the effect, the matters issuing from the Pit Shaft may have had on the number of deaths occurring in the

houses affected, I have examined the death returns for the past 10 years, and for the purpose of comparison, I have divided Lyon street into two almost equal parts, and have ascertained the number and causes of deaths in Lyon Street, east of Ellison Street (the part chiefly effected by the Pit Shaft), and also the number and causes of deaths in Lyon Street, west of Ellison Street. In number of dwellings, inhabitants and other circumstances, these two segments of Lyon Street are closely alike, but the east part is exposed to the matters from the pit mouth, the west part may be considered to be free from them. Each part contains a population of about 300.

During the five years, 1889-93, 30 deaths occurred in Lyon Street east of Ellison Street, 32 deaths in Lyon Street west of Ellison Street.

From Bronchitis, Puemonia, and Pleurisy, during these five years, 12 occurred in east half, 10 in west half. From Phthisis, three in east half, three in west half. From Rheumatism, one in east half, one in west half.

These are the chief diseases most apt to be injuriously affected by dampness of climate, and it is here seen that there is no marked difference in the number of deaths occurring from these in the half of Lyon Street exposed to matters discharged from the Pit Shaft, and in the number of deaths occurring in the other half of Lyon Street to the west of Ellison Street, and away from the influence of the Pit Shaft.

During the five years, 1884-1888, 26 deaths occurred in Lyon Street, east of Ellison Street, 40 deaths in Lyon Street west of Ellison Street. Of these from

| | |
|---|--|
| Bronchitis, Pneumonia, and Pleurisy,... | 8 in east half, 6 in west. |
| Phthisis | 0 „ 3 „ |
| Rhuematism | 0 „ 1 „ |

Here, too, in these diseases most liable to be injuriously affected by dampness, there is no marked difference in the mortality in the two halves of the street.

I therefore do not find any evidence from examination of the death returns during the past 10 years that the discharges from the Pit Shaft have aggravated the general mortality in the houses affected, nor the mortality from these special diseases, which are those most likely to be produced.

3rd. In order to ascertain what effect the discharge from the pit shaft has on the prevalence of sickness among the inhabitants affected, I made a house-to-house visit of all the houses in Lyon Street, situated between Ellison Street and Caledonian Street, and made enquiries regarding 37 families. Of these 25 families have no complaint to make either of the effect of the pit shaft being disagreeable or injurious to their health. Eleven complain of it chiefly on account of the approaches to their houses being frequently made wet and dirty by it, and that this indirectly makes their floors damp and dirty, and that when the wind is blowing the contents of the shaft in their direction, they cannot open their windows for ventilation without getting their rooms made damp and dirty. They do not allege that it has caused any noticeable ill-effects on the health of their families, though some have resided there for 20 years.

One only complained of it having injuriously affected his health, and that during his residence he had repeatedly inflammation of the lungs and pleurisy. I think, however, that in this case there is reason to believe that the diseases suffered from were in large measure due to other causes.

I therefore do not find evidence that the discharges from the pit shaft have injuriously affected the health of the inhabitants of the houses exposed to them, either in the way of increasing the prevalence of sickness or by increasing the relative mortality, but I find that they are at certain times a *nuisance*, and that *theoretically* they may be said to be injurious to health, but only slightly so.

Among indications of causes of disease, the ordinary, and to a certain extent unavoidable conditions, atmospheric and others, incidental to a manufacturing district, should not be lost sight of in comparison with the conditions that prevail in Rural Districts where the conditions in regard to good sanitation are, or may be, more ideally perfect. Other conditions referred to in previous reports, such as irregularity of employment, the want of a good public park, and intemperance, have been still felt during the past year.

The Bye-Laws.

These have now been amended by you, and approved by the Local Government Board. A large number of these new Bye-Laws have

been printed, and are now in force in the District. They might still be most advantageously supplemented by your adoption of the Public Health Amendment Act and the application of the Bye-Laws in regard to the sanitary conveniences for the storage of refuse, to *all* houses in the District.

Appendix.

(A) Table of Deaths

During the Year 1893, in the Urban Sanitary District of Hebburn, classified according to Diseases, Ages, and Localities.

| Mortality from all causes, at subjoined Ages. | | | | | | | | | | Mortality from subjoined causes, distinguishing Deaths of Children under Five Years of Age. | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|-----|----|----|----|----|----|---------|-----|---|-----|-----|-----|---------|---------------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|
| Names of Localities adopted for the purpose of these Statistics; public institutions being shown as separate localities. | At all Ages | | | | | | | i. | 1. | 2. | 3. | 4. | 5. | Fevers. | | | | | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. | | |
| | b. | c. | d. | e. | f. | g. | h. | | | | | | | Typhus. | Enteric or Typhoid. | Continued. | Relapsing. | Puerperal. | | | | | | | | | | | | | | | |
| Quay | 138 | 47 | 22 | 8 | 6 | 47 | 8 | Under 5 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 37 | 69 |
| | | | | | | | | 5 upwds | ... | ... | ... | ... | ... | 4 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | 1 | ... | 4 | ... | ... | ... | ... | ... | 3 | 69 |
| New Town | 94 | 28 | 18 | 1 | 5 | 31 | 11 | Under 5 | ... | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 19 | 46 |
| | | | | | | | | 5 upwds | ... | ... | ... | ... | ... | 3 | ... | ... | ... | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 19 | 48 |
| Colliery | 82 | 33 | 22 | 3 | 8 | 12 | 4 | Under 5 | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2 | 4 | 9 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 31 | 55 |
| | | | | | | | | 5 upwds | ... | ... | ... | 1 | ... | 2 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 8 | 27 |
| TOTALS | 314 | 108 | 62 | 12 | 19 | 90 | 23 | Under 5 | ... | 3 | ... | ... | ... | ... | ... | ... | ... | ... | 4 | 11 | 32 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 87 | 170 |
| | | | | | | | | 5 upwds | ... | ... | ... | 1 | ... | 9 | ... | ... | 2 | 4 | ... | ... | 2 | ... | 4 | ... | ... | ... | ... | ... | ... | ... | ... | 50 | 144 |

(B) Table of Population, Births, and of New Cases of Infectious Sickness,
 Coming to the knowledge of the Medical Officer of Health, during the year 1893, in the Urban Sanitary District of
 Hebburn; classified according to Diseases, Ages, and Localities.

| Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities. | Population at all ages. | | New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health. | | | | | | | | | | | | | Number of such cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital. | | | | | | | | | | | | | | | | |
|--|-------------------------|--------------|---|-------------------|--------------|-----------|-------------|-------------|-------------------|---------|----|-----|-----|-----|----------|--|-----|-----|-----|----|-----------|-------------|-------------|-------------------|---------|-----|-----|-----|-----|----------|-------------|----------|
| | (a.) | (b.) | (c.) | (d.) | (e.) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Census 1891. | Estimated to middle of 1893. | Registered Births | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
| | | | | | | Smallpox. | Scarlatina. | Diphtheria. | Membranous Croup. | Fevers. | | | | | Cholera. | Erysipelas, | | | | | Smallpox. | Scarlatina. | Diphtheria. | Membranous Croup. | Fevers. | | | | | Cholera. | Erysipelas. | Measles. |
| | | | | | At all Ages. | ... | 40 | 3 | ... | ... | 32 | ... | ... | 1 | ... | 19 | ... | ... | ... | 12 | ... | 1 | ... | ... | 8 | ... | ... | ... | ... | ... | ... | |
| Quay | | | | | At all Ages. | ... | 19 | 7 | ... | ... | 14 | ... | ... | ... | ... | 11 | ... | ... | ... | 7 | 1 | ... | ... | ... | 2 | ... | ... | ... | ... | ... | ... | |
| New Town (H.) | | | | | At all Ages. | ... | 19 | 7 | ... | ... | 14 | ... | ... | ... | ... | 11 | ... | ... | ... | 1 | ... | ... | ... | ... | 4 | ... | ... | ... | ... | ... | ... | |
| Colliery | | | | | At all Ages. | ... | 19 | 14 | 1 | ... | 9 | 4 | ... | 1 | ... | 6 | ... | ... | ... | 1 | ... | ... | ... | ... | 4 | ... | ... | ... | ... | ... | ... | |
| TOTALS | | | | | At all Ages. | ... | 78 | 24 | 1 | ... | 55 | 4 | ... | 2 | ... | 36 | ... | ... | ... | 20 | 1 | ... | ... | ... | 14 | ... | ... | ... | ... | ... | ... | |

State here whether "Notification of Infectious Disease" is compulsory in the District—Yes. Since when?—February 5th, 1890. Besides the above-mentioned Diseases, insert in the columns with blank headings the names of any that are notifiable in District, and fill the columns accordingly. State here the name of the Isolation Hospital used by the sick of the District. Mark (H) the Locality in which such Hospital is situated; and if not within the District, state where it is situated—Hebburn Fever Hospital.

Inspector of Nuisance's

REPORT

For the Year 1893.



To the Chairman and Members of the Hebburn Local
Board.

GENTLEMEN,

I have the honour to lay before you my Report of work done since my appointment in February this year.

Slaughter Houses.

All the Slaughter Houses in the district are kept in a very clean condition, and I have not had any trouble with them, and have only upon two occasions had to order cleansing.

Bake Houses.

There is only one Bake House in the district and it is kept in a fairly clean condition.

Cow Sheds and Milk Shops.

All the Cow Sheds have been white-washed twice this year, viz., in May and October, and are in good condition and very clean. I had to order water to be supplied to Blue House Farm, which was done. I have visited the Milk Shops regularly, and found them to be clean.

Food and Drugs' Act.

I have taken 19 samples under the above Act, viz.:

| SAMPLES TAKEN. | RESULT. |
|----------------|---|
| Lard 2 ... | Pure |
| Cheese 2 ... | Pure |
| Vinegar 1 ... | Adulterated with 90 per. cent. of pyroligneous acid and water coloured to imitate real vinegar. |
| Whisky 5 ... | One sample contained 35 degrees of water, only 25 being allowed by the above Act. |
| Rum 1 .. | This sample contained 38 degrees of water, only 25 being allowed by the above Act. |
| Milk 3 ... | Pure |
| Butter 5 ... | Pure |

Unsound Fruit.

I have upon several occasions asked people gathering rags, etc., in the lanes, and giving fruit for them, to destroy part of their fruit, which they did in my presence, and put it into the ash-closets near after it was made useless. I have visited the fruiterers' shops regularly, and found them all clean, and during the threatened Cholera epidemic, I asked all the fruiterers to be very careful and pick their fruit, and cautioned them that if I caught them selling any that was unsound, I would seize it and have it destroyed, and take proceedings against them, but I have never had any cause to do so.

Fried Fish Shops.

These are all kept in excellent condition, and I have visited them when they were at their busiest (Saturday nights especially), and found the fish all sound.

Infectious Diseases.

201 cases have been notified, and I have attended to them all and supplied disinfectants and printed instructions, and have made 456 visits to the infected houses to see that proper precautions were being taken to check the spread of the disease, and have either fumigated them myself with sulphur, after the patients have recovered, or have been satisfied that the occupiers have done so themselves.

Patients Removed to the Hospital.

I have removed 36 patients to the Hospital, viz., Typhoid Fever 14, Scarlet Fever 20, Diphtheria one, Measles and Fever combined

one, and have ridden in the ambulance with all of them and seen them comfortably conveyed there.

Seizure of Unsound Food.

I had upon one occasion to seize some meat which was being prepared for sale but upon the owner consenting for me to destroy it, nothing further was done in the matter, after the Magistrates order was obtained. I seized some herrings which were being hawked about the lanes on a Sunday morning, and had them condemned by the Medical Officer of Health and got a Magistrates order to destroy them, and had the hawker summoned both for obstruction and selling.

Nuisances.

The following notices to abate nuisances have been served :—

| FOR WHAT PURPOSE. | No. |
|--|-----|
| To Cleanse Dirty Passages and Houses ... | 31 |
| To fix Ashcloset Doors ... | 22 |
| To Close a House above a Stable ... | 1 |
| To Repair Deep and Wet Ashpits ... | 34 |
| To Cease Throwing Refuse into the Street ... | 8 |
| To Supply Water to a Watercloset ... | 1 |
| To Cement Bad Yards ... | 2 |
| To Trap Untrapped Sinks .. | 11 |
| To Clear Choked Yard Drains ... | 31 |
| To Remove Pigsties from dwellings .. | 1 |
| To Cleanse Dirty Yards and Outhouses .. | 48 |
| Total Number of Notices Served ... | 190 |

Proceedings before the Magistrates.

| NO. OF CASES. | OFFENCE. | RESULT. |
|---------------|---|--|
| 1 | Selling Unsound Herring in Streets | 10/- and costs, 26/- in all. |
| 1 | Burning Mattresses in the Streets and Assault | Bound over for six months and cautioned. |
| 1 | Adulterated Whisky | Dismissed. |
| 1 | Adulterated Rum | Dismissed. |
| 1 | Adulterated Vinegar | Five shillings including costs. |

Contagious Diseases' Animals' Act.

I have visited all the piggeries in the district, and have upon several occasions had to order the removal of manure, but have always found the swine to be healthy, and the same in the case of cattle, etc.

Ashclosets, Ashpits, etc.

There has been a considerable number of ashclosets erected during the year and a good many ashpits have been cemented out. There still remains a few deep ashpits but I cannot ask for them to be repaired or cemented before the summer.

I am, Gentlemen,

Your obedient Servant,

JOHN NEWBY.

